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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/744,424	01/24/2001	Toshiyuki Nakamura	1217-010064	5656

7590

09/04/2003

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EXAMINER

NORRIS, JEREMY C

ART UNIT

PAPER NUMBER

2827

DATE MAILED: 09/04/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/744,424

Applicant(s)

NAKAMURA ET AL.

Examiner

Jeremy C. Norris

Art Unit

2827

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 116-118 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 116-118 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 October 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____. 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 16 July 2003 has been entered.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 116-118 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 3,750,278 (hereafter Baker) in view of US 6,288,905 (hereafter Chung) and US 5,019,944 (hereafter Ishii).

Baker discloses, referring to figures 6-13, a printed wiring board-forming sheet (29) comprising an insulating resin sheet (85) having a through hole (29a) inserted and filled with a conductive metal chip (88) of substantially the same shape as the hole, wherein the conductive metal is formed by punching a conductive metal sheet. Baker does not specifically disclose that the sheet is selected from the group consisting of a solder sheet, a solder-plated metal sheet and a copper alloy sheet. Indeed Baker discloses a preferred embodiment where the sheet is copper. However, it would have been obvious, to one having ordinary skill in the art, at the time of invention, to use a copper alloy sheet as copper alloy is known in the art to be a functional equivalent to copper in conductive applications as evidenced by Chung (see col. 3, line 65 – col. 4, line 10). Furthermore, it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416. Moreover, Applicants themselves reference this same equivalency on page 41 of the instant application. In addition, the once modified invention of Baker does not specifically disclose that the insulating resin sheet is made of at least one material selected from the group consisting of polyimide, polyester, polypropylene, polyethylene sulfide, polyvinylidene chloride, ethylene-vinyl alcohol copolymer, and bismaleimide triazine (BT) resin. However, Baker does state that the material may be glass epoxy (see col. 11, lines 25-

35). It is well known in art that glass epoxy and polyimide are art recognized equivalents for the purpose of forming dielectric PCB substrates as evidenced by Ishii (see col. 6, lines 55-65). Therefore, it would have been obvious, to one having ordinary skill in the art, at the time of invention, to further modify the invention of Baker to comprise a polyimide sheet since polyimide and glass epoxy are known functional equivalents [claim 116].

Additionally, the twice modified invention of Baker discloses a conductive metal layer formed on a surface of the resin insulating sheet, the conductive material layer and the metal chip being electrically connected with each other [claim 117], wherein the conductive material layer is formed by a wiring pattern (86, 87) [claim 118].

Response to Arguments

Applicant's arguments filed 18 April 2003 have been fully considered but they are not persuasive. Applicants' arguments hinge on the contention that the combination of Baker and Chung does not disclose a resin sheet comprised of "at least one material selected from polyimide, polyester, polypropylene, polyphenylene sulfide, polyvinylidene chloride, ethylene-vinyl alcohol copolymer, and a BT resin as in the presently claimed invention". However, while not necessarily agreeing with Applicants' assement, Examiner has nevertheless provided the Ishii reference to remedy this perceived deficiency of the combined teachings of Baker and Chung. The Examiner submits that the combined teachings of Baker, Chung, and Ishii indeed do disclose a resin sheet comprising a material selected from the claimed group.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeremy C. Norris whose telephone number is 703-306-5737. The examiner can normally be reached on Mon.-Th., 9AM - 6:30 PM and alt. Fri. 9AM-5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David L. Talbott can be reached on 703-305-9883. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

JCSN

John B. Vigushin
John B. Vigushin
Primary Examiner
AU 2827